

■ Introduction

The SMV918 Series is a high-precision voltage detector developed using CMOS process. The detection voltage is fixed internally with an accuracy of 2%. A time delayed reset can be accomplished with the addition of an external capacitor. Two output forms, Nch open-drain and CMOS output, are available.

■ Applications

- Power supply monitor for portable equipment such as notebook PCs, digital still cameras, PDAs and cellular phones
- Constant voltage power monitor for cameras, video equipment and communication equipment
- Power monitor and reset for CPUs and microcomputers

■ Features

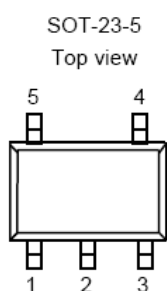
- Ultra-low current consumption:1.0uA
- High-precision detection voltage:2%
- Operating voltage range:0.7V to 7.0V
- Hysteresis characteristics:5% typ
- Detection voltage:0.8V to 5.0V (0.01V step)
- Output forms:
Nch open-drain output (Active Low)
CMOS output (Active Low)
- Lead-free products

■ Order Information

SMV918①②③④⑤

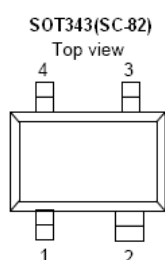
DESIGNATOR	SYMBOL	DESCRIPTION
①	C	CMOS
	N	NMOS open drain
② ③ ④	Integer	Detection Voltage (1.50V~6.00V), “④”elide when it is “0” e.g. 3.0V=② :3, ③ :0 2.93V=② :2, ③ :9, ④ :3
⑤	M	Package:SOT-23-5
	N	Package: SOT-343(SC-82)

■ Pin Configurations



SMV918 Series (SOT-23-5)

PIN NO.	PIN NAME	FUNCTION
1	OUT	Reset Signal Output Pin
2	V _{DD}	Power Input
3	GND	Ground
4	NC	No connection
5	C _D	Capacitor Connect Pin with Delay



SMV918 Series (SOT-343)

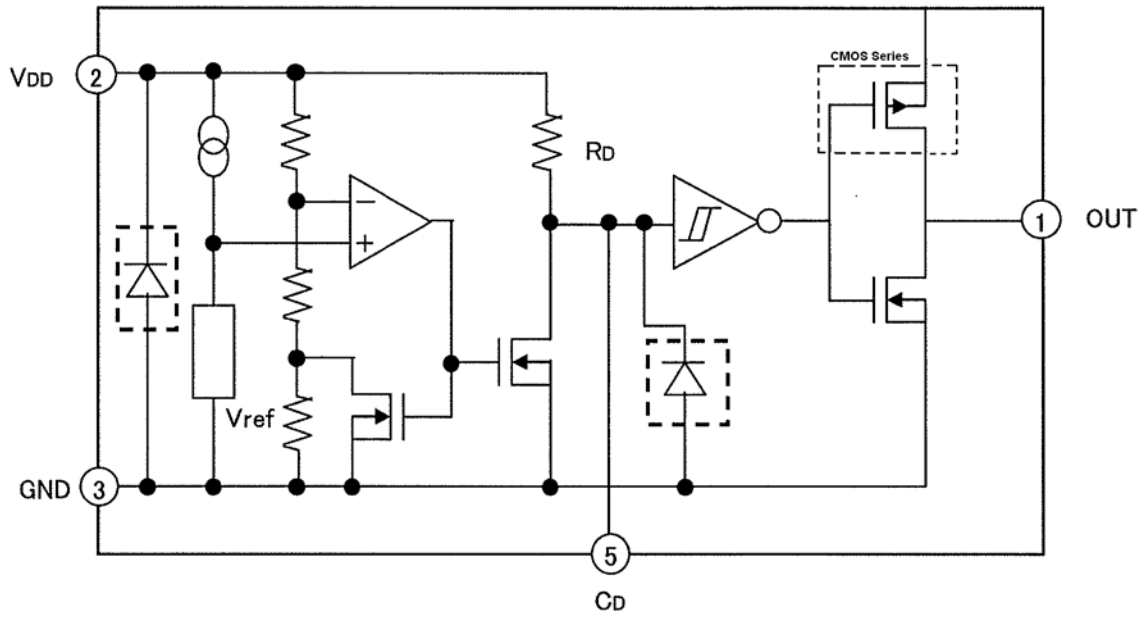
PIN NO.	PIN NAME	FUNCTION
1	V _{DD}	Power Input
2	GND	Ground
3	C _D	Capacitor Connect Pin with Delay
4	OUT	Reset Signal Output Pin

■ Absolute Maximum Ratings

(T_A=25°C unless otherwise specified)

Item	Symbol	Ratings	Unit	
Power supply voltage	V _{DD}	V _{SS} -0.3 ~ V _{SS} +8	V	
Output voltage	V _{OUT}	V _{SS} -0.3 ~ V _{SS} +8	V	
Power dissipation	PD	SOT-343	250	mW
		SOT-23-5	400	mW
Operating ambient temperature	T _{opr}	-40 ~ +85	°C	
Storage temperature	T _{stg}	-55 ~ +150	°C	
ESD rating	Human Body Model-(HBM)	2	KV	
	Machine Model-(MM)	200	V	

■ Block Diagram



■ Electrical Characteristics

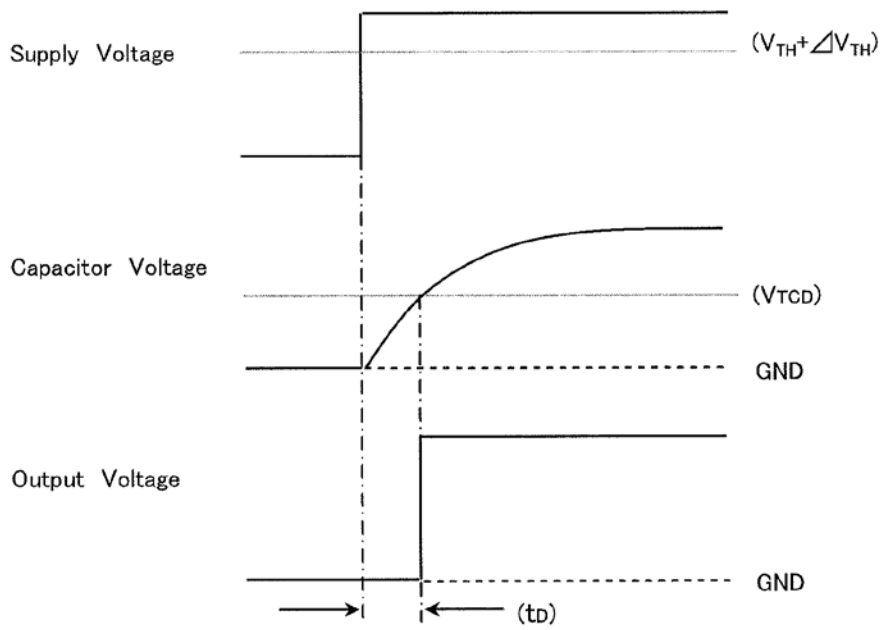
(T_A=25°C unless otherwise specified)

Item	Symbol	Condition	Min.	Typ.	Max.	Unit	
Detection voltage*1	V _{TH}	—	V _{TH(S)} ×0.98	V _{TH(S)}	V _{TH(S)} ×1.02	V	
Hysteresis width	ΔV _{TH}	—	V _{TH(S)} ×0.02	V _{TH(S)} ×0.05	V _{TH(S)} ×0.08	V	
Current consumption	I _{SS}	V _{DD} =V _{TH(S)} +0.5V		1.0	2.0	uA	
Operating voltage	V _{DD}	—	0.7	—	7.0	V	
Output current	I _{OUT}	NCH:V _{OUT} =0.5V V _{DD} =V _{TH(S)} -0.5V	SMV918_20~26	3.0	13.0	20	mA
			SMV918_26~39	3.0	15.0	20	mA
			SMV918_39~60	3.0	18.0	20	mA
		V _{DD} -V _{OUT} =0.5V V _{DD} =V _{TH(S)} +0.5V	SMV918_20~26	1.5	4.0	10	mA
			SMV918_26~39	1.5	6.0	10	mA
			SMV918_39~60	1.5	8.0	10	mA
Leakage current	I _{LEAK}	Only for Nch open-drain output products, Nch, V _{DD} =7.0V, V _{OUT} =7.0V		0.1	1.0	uA	
temperature coefficient		T _a =-40°C~+85°C		±100		ppm/°C	
CD PIN resistance	R _D	V _{DD} =5V V _{cd} =0V	6	9	12	MΩ	
CD Delay Pin Threshold Voltage	V _{TCD}		0.30*V _{DD}	0.5*V _{DD}	0.60*V _{DD}	V	
CD Delay Time	T	T=-ln(1-V _{TCD} /V _{DD})×RC	0.35RC	0.69RC	0.92RC	S	
L transfer delay time	t _{PHL}	V _{DD} =V _{TH} +0.4V→V _{TH} -0.4V (note 2)	2	15	100	uS	
H transfer delay time	t _{PLH}	V _{DD} =V _{TH} -0.4V→V _{TH} +0.4V (note 2)	2	15	100	uS	

*1.V_{TH}: Actual detection voltage value, V_{TH(S)}: Specified detection voltage value.

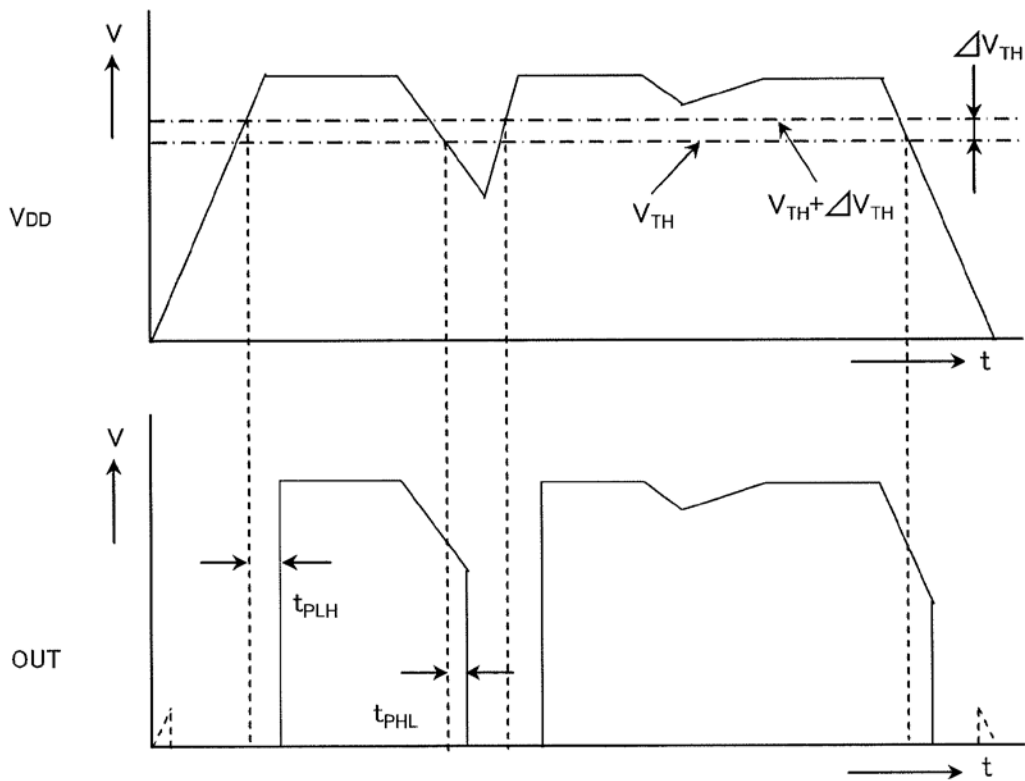
*2.The parameter is guaranteed by design.

■ Timing Chart

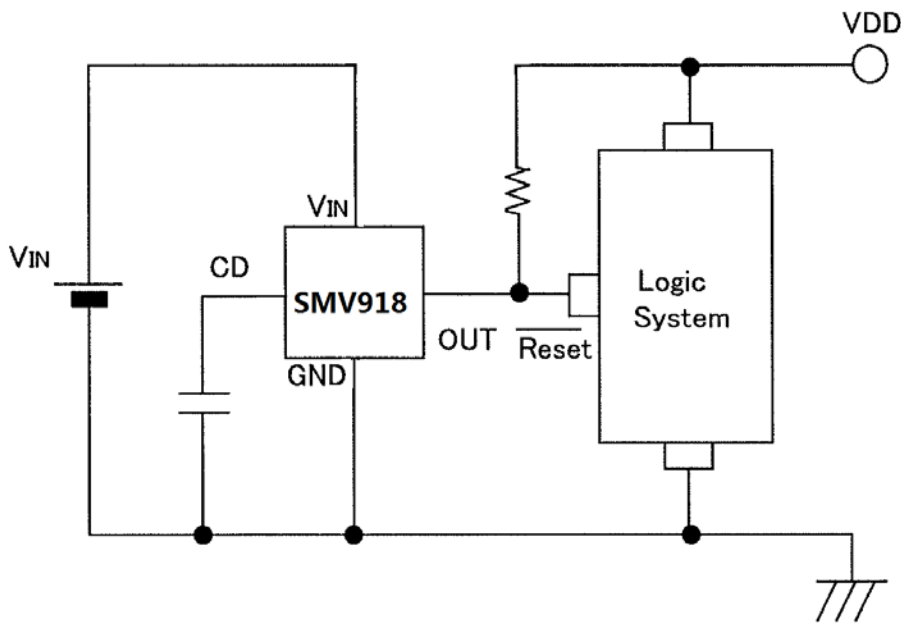
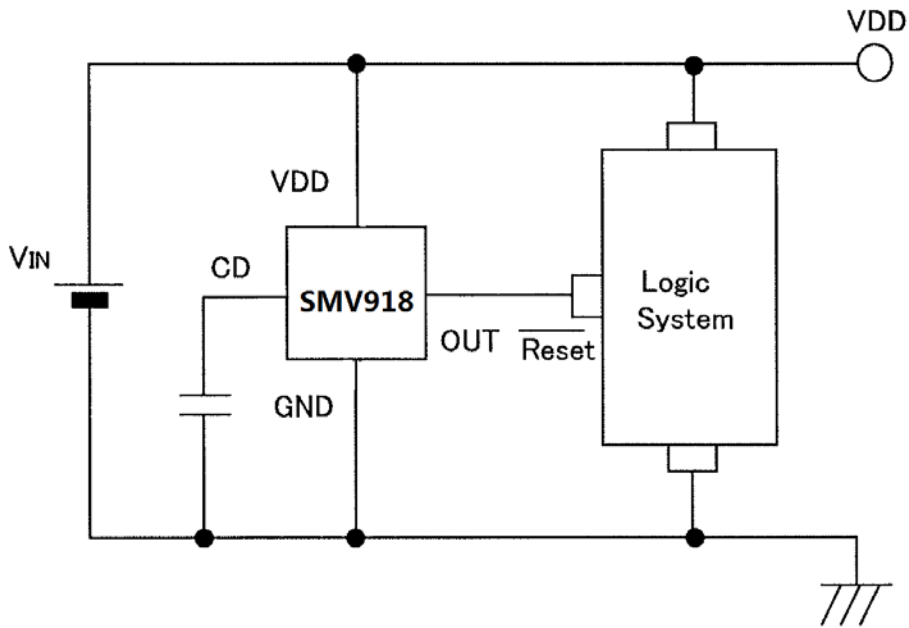


$(t_d) \quad t_d \approx 0.69 \times R_D \times C_D (F) \quad (s)$

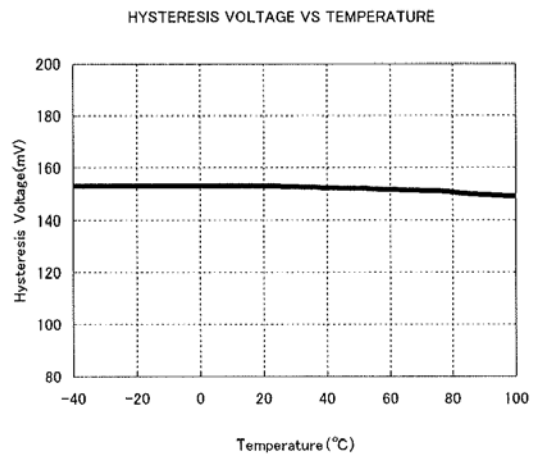
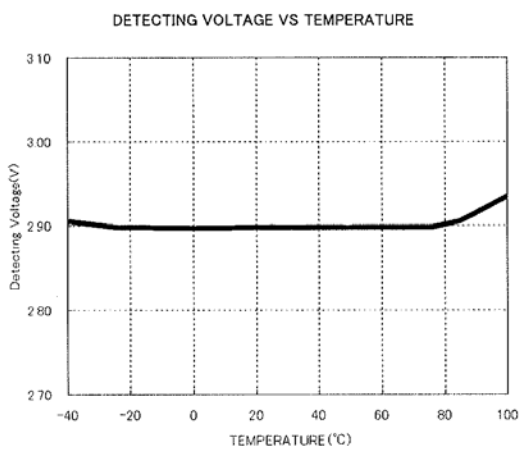
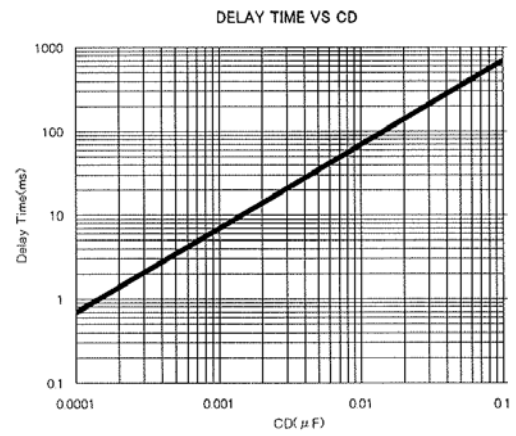
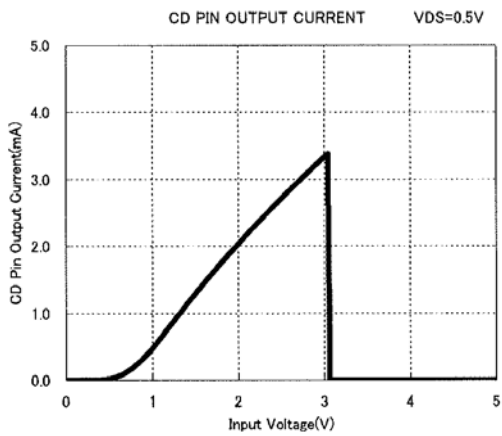
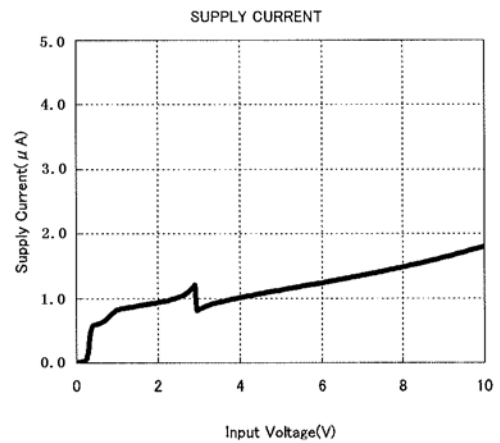
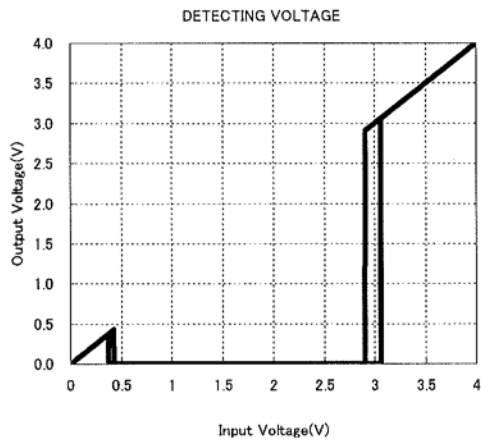
R_D : CD Pin Resistance
 C_D : Capacitor



■ Typical Application Circuit

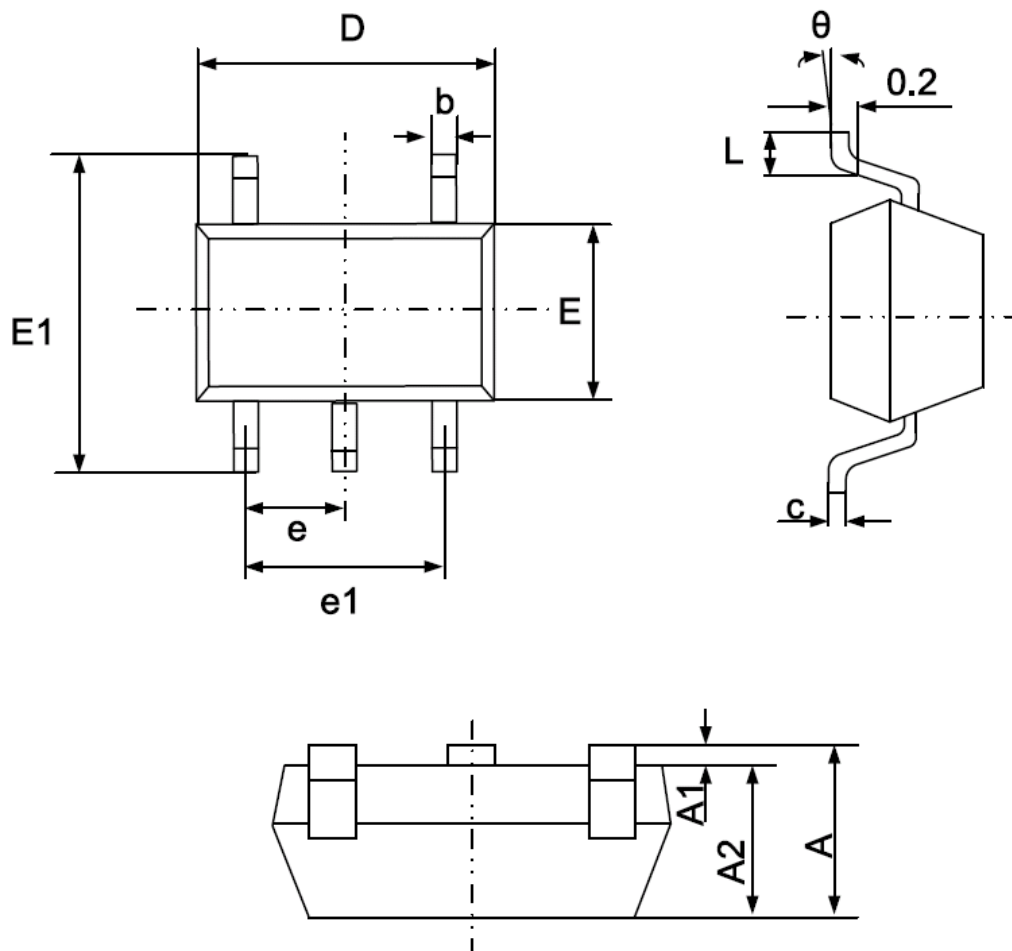


■ Typical Performance Characteristics



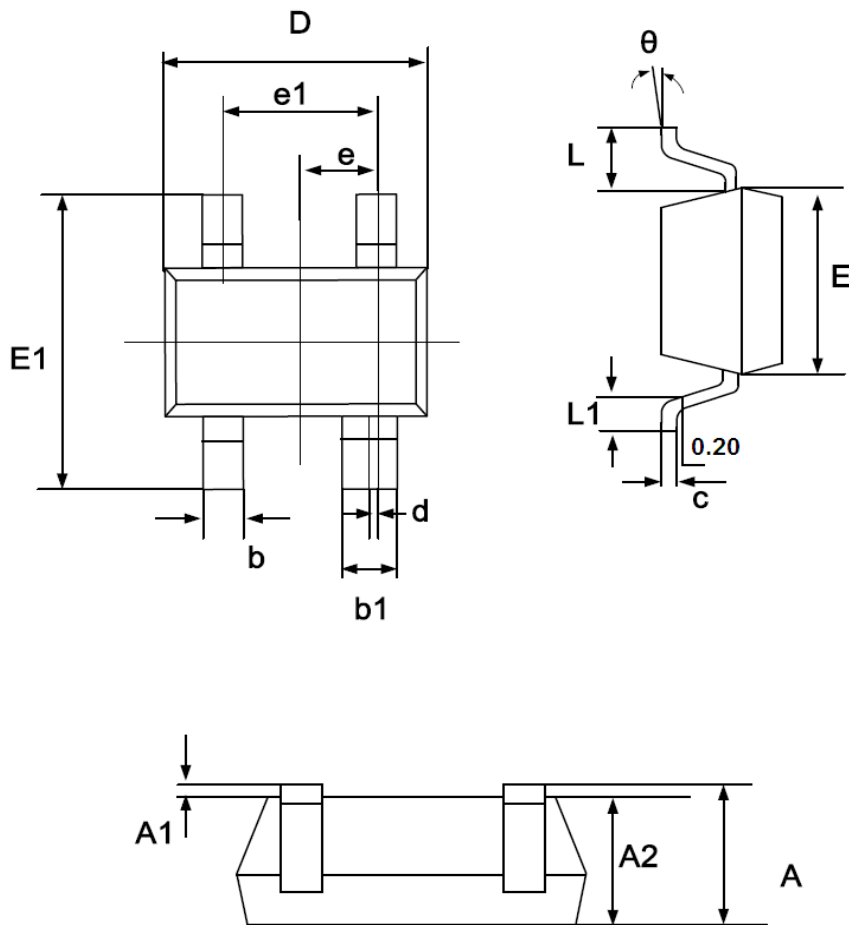
■ Package information

• SOT-23-5



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

• SOT-343



Symbol	Dimensions In Millimeters	
	Min.	Max.
A	0.900	1.100
A1	0.000	0.100
A2	0.900	1.000
b	0.250	0.400
b1	0.350	0.500
c	0.080	0.150
d	0.050 TYP.	
D	2.000	2.200
E	1.150	1.350
E1	2.150	2.450
e	0.650 TYP	
e1	1.200	1.400
L	0.525 REF	
L1	0.260	0.460
θ	0°	8°

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